2000 EIS CONFERENCE
Schedule Addendum

Friday Morning C April 14, 2000

10:30 Latebreaking Reports. Moderator: Thomas J. Török

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10:45 Control of Vancomycin-Resistant *Enterococcus* in the Siouxland District Health Department, 1997–1999: Working Together As a Healthcare Facility Community. *Annette H. Sohn*

10:55 Concurrent Hospital Outbreaks of *Escherichia coli* O157:H7 and *Salmonella* Derby — New York, December 1999–February 2000. *Joel H. Ackelsberg*

11:05 A Multistate Outbreak of *Salmonella* Newport Infections Linked to Mango Consumption, November–December 1999. *Sumathi Sivapalasingam*

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ABSTRACTS

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10:30 Latebreaking Reports. Moderator: Thomas J. Török

10:35 ***Catherine A. McLean, S. Wang, G. Hoff, L. Dennis, S. Neal, J. Knapp, L. Markowitz, W. Levine***
Emergence of *Neisseria gonorrhoeae* with Decreased Susceptibility to Azithromycin Associated with Commercial Sex — Kansas City, Missouri, 1999

Background: Sexually transmitted infections caused by *Neisseria gonorrhoeae* are a leading cause of pelvic inflammatory disease, ectopic pregnancy, and infertility in the United States and can help transmit human immunodeficiency virus (HIV) infection. Approximately 350,000 gonorrhea infections are reported annually. From March through December 1999, a total of 12 men in Kansas City were reported to have *N. gonorrhoeae* infections with markedly decreased susceptibility to azithromycin (AziDS-GC). Azithromycin is approved by the U.S. Food and Drug Administration, although not recommended by CDC, for gonorrhea treatment and is widely used to treat *Chlamydia trachomatis* and other infections.
Methods: AziDS-GC infections were identified in Kansas City through the Gonococcal Isolate Surveillance Project (GISP), a sentinel surveillance system that monitors antibiotic resistance of *N. gonorrhoeae* among men attending sexually transmitted disease (STD) clinics in 27 cities. We compared data from medical records of the 12 AziDS-GC case-patients with data from 48 Kansas City GISP patients with azithromycin-susceptible gonorrhea (control-patients) treated during the same period. We also interviewed all case-patients regarding sexual behaviors and travel history.
Results: The median age for the 12 case-patients was 33 years, compared with 23 years for control-patients ($p<0.005$). Six (50%) of the case-patients reported having sex with female sex workers, compared with 6/48 (12%) control-patients (Odds Ratio=7.0; 95% Confidence Interval=1.4–37.3). Two case-patients were HIV-infected. All case-patients denied sexual contact with men or foreign travel.
Conclusions: This is the first cluster of persons with AziDS-GC reported. To prevent further dissemination of AziDS-GC in Kansas City, azithromycin should not be used to treat gonococcal infections, and local efforts to control gonorrhea should include improving STD prevention activities for men and women participating in commercial sex.

10:45 ***Annette H. Sohn, B. Ostrowsky, S. Holt, S. Quirk, L. Carson, B. Hill, M. Arduino, W. Jarvis***
Control of Vancomycin-Resistant *Enterococcus* in the Siouxland District Health Department, 1997–1999: Working Together as a Health-care Facility Community

Background: Vancomycin-resistant *Enterococcus* (VRE), an emerging antimicrobial-resistant pathogen, is increasingly prevalent at U.S. health-care facilities (HCFs). Beginning in 1997, the Siouxland District Health Department organized a program involving infection-control education, patient/resident screening, and

implementation of isolation precautions to respond to the emergence of VRE in HCFs in the Siouxland region of Iowa, Nebraska, and South Dakota.

Methods: We compared VRE prevalence rates before (1997) and after (1999) the program's initiation by surveying patients/residents in 30 HCFs (4 acute care facilities [ACFs] and 26 long-term–care facilities [LTCFs]). We performed perirectal swab cultures, genotyped VRE isolates, and assessed infection-control practices.

Results: Patient participation was similar at ACFs (1997: 152/286 [53%]; 1999: 170/289 [59%]) and LTCFs (1997: 1,700/1,897 [90%]; 1999: 1,650/1,760 [94%]). Overall, VRE prevalence decreased from 2.2% (40/1,852) to 0.5% (9/1,820) (Mantel-Haenszel Relative Risk [MHRR] stratified by facility=0.23, 95% Confidence Interval [CI]=0.12–0.47; p=0.001); in ACFs, from 6.6% (10/152) to 0% (MHRR=0, CI=indeterminate; p=0.002); and in LTCFs, from 1.8% (30/1,700) to 0.5% (9/1,650) (MHRR=0.31, CI=0.15–0.66; p=0.002). Pulsed-field gel electrophoresis demonstrated that one dominant VRE clone from the 1997 survey, comprising 85% of isolates (ACF 6/10, LTCF 28/30), was not detected in 1999. Of the 29 HCFs that completed infection-control surveys in 1999, 4/4 (100%) ACFs and 23/25 (92%) LTCFs had patient VRE screening policies, and 4/4 (100%) ACFs and 23/25 (92%) LTCFs isolated/cohorted colonized patients.

Conclusions: Our results demonstrate for the first time that VRE can be controlled in multiple HCFs in a region and they suggest that both ACFs and LTCFs should be involved in organization and planning infection-control interventions to control emerging pathogens.

10:55 ***Joel H. Ackelsberg, S. Todd, S. Kondracki, H. Frey, P. Masterson, D. Schoonmaker-Bopp, T. Root, S. Wong, D. Swerdlow, S. Olsen, B. Wallace***

Concurrent Hospital Outbreaks of *Escherichia coli* O157:H7 and *Salmonella* Derby — New York, December 1999–February 2000

Background: Approximately 70,000 *Escherichia coli* O157:H7 infections occur annually in the United States, *E. coli* O157:H7 infections in hospitals are rare. *Salmonella* Derby accounts for <1% of New York's *Salmonella* isolates. In January 2000, several hospital employees presented with culture-confirmed *E. coli* O157:H7 and *S.* Derby infections, with most illnesses on Unit B.

Methods: Active surveillance identified hospital employees and patients with diarrhea from December 28, 1999, through February 15, 2000. Hospital employees completed questionnaires for a cohort study of diarrheal risk factors. Stool specimens from symptomatic employees and patients and Unit B environmental specimens were obtained. *E. coli* O157:H7 isolates were compared using pulsed-field gel electrophoresis (PFGE).

Results: Of 1,190 employees, 573 (48%) completed the questionnaire; 79 (14%) reported diarrhea, including 13/36 (36%) Unit B employees. *E. coli* O157:H7 was isolated from 12 employees, 7 (58%) of whom worked on Unit B, but from no patients. *S.* Derby was isolated from 1 patient and 4 employees, 2 of whom were co-infected with *E. coli* O157:H7. Hospital-wide, diarrhea was associated with eating in the coffee shop (Relative Risk [RR]=3.0, 95% Confidence Interval [CI]=1.6–5.5]. Several food items were implicated in the univariate analysis; multivariate results are pending. On Unit B, *E. coli* O157:H7 infection also was associated with the coffee shop (RR=9.4; CI=1.3–70.2) and with drinking coffee with milk from the Unit B refrigerator (RR=3.5, CI=0.9–12.8).

E. coli O157:H7 was isolated from a refrigerator food item and two utility rooms. All clinical and environmental *E. coli* O157:H7 isolates had indistinguishable or related PFGE patterns.

Conclusions: This could be the largest reported hospital *E. coli* O157:H7 outbreak. Preliminary analysis suggests contamination in the coffee shop, with amplification on Unit B.

11:05 ***Sumathi Sivapalasingam, A. Kimura, M. Ying, A. Frisch, E. Barrett, Q. Phun, E. Gould, P. Shillam, S. Reddy, T. Breslowsky, S. Kondraki, K. Smith, M. Deasy, S. Van Duyne, L. Slutsker***
A Multistate Outbreak of *Salmonella* Newport Infections Linked to Mango Consumption, November–December 1999

Background: Approximately 1.4 million cases of salmonellosis occur in the United States annually. Fresh produce has recently been recognized as an important source of salmonellosis. In December 1999, CDC detected a nationwide increase in *Salmonella* serotype Newport infections during the previous month. *S.* Newport isolates from patients in this cluster had an indistinguishable pulsed-field gel electrophoresis (PFGE) pattern (outbreak strain), suggesting a common source.
Methods: The magnitude and cause of the outbreak were determined by national case-finding and a case-control study. A case was defined as infection with the outbreak strain during November or December 1999. Patients were matched to two age- and ethnicity-matched controls. PFGE was performed in state public health laboratories and at CDC. The U.S. Food and Drug Administration traced the source of implicated mangoes.
Results: We identified 79 patients infected with the outbreak strain from 13 states. Forty-two percent of patients either self-identified as Hispanic or Asian or had compatible surnames. The median age for case-patients was 37.5 years (range: 7 weeks–91 years). Fifteen patients were hospitalized; two died. Among 28 patients enrolled in the matched case-control study, 14 (50%) ate mangoes during the 5 days before illness onset, compared with 4 (10%) controls (Matched Odds Ratio=21.6; 95% Confidence Interval=3.53–∞, p=0.0001). No other exposures were significantly associated with infection. The source of the implicated mangoes is still being traced.
Conclusions: This is the first reported salmonellosis outbreak that implicates mangoes. PFGE was critical to the timely recognition of this nationwide outbreak. This outbreak highlights the importance of identifying potential control points to prevent contamination of fresh produce during growing, harvesting, processing, and shipping.

11:15 ***Shanna L. Nesby-O'Dell, K. Tomashek, M. Cogswell, K. Powell, A. Mellinger-Birdsong, U. Parashar, L. Grummer-Strawn, K. Scanlon***
Severe Malnutrition Among Young Children — Georgia, 1997–1999

Background: Georgia health officials were notified of two toddlers with severe malnutrition (one with rickets, one with kwashiorkor [i.e. severe protein-calorie deficiency]) associated with consuming commercial milk substitutes. Both diseases are uncommon among U.S. children. The child with rickets consumed soy beverage with no vitamin D. The child with kwashiorkor consumed rice beverage with minimal protein. Officials requested an investigation to determine the frequency of rickets and severe protein-energy malnutrition (PEM) in Georgia and the proportion of cases associated with milk substitutes.
Methods: To identify cases we reviewed medical records for children aged 6 months–5 years, hospitalized in Georgia for rickets or PEM from January 1997 through June 1999. Cases were identified by *ICD-9-CM* codes and confirmed by medical record review.
Results: Nine of 43 cases were considered nutritional and not associated with congenital abnormalities, infectious or metabolic diseases. Case-patient ages varied from 6–21 months (mean=13 months). Six children had rickets; all were African-American and breast-fed 7–19 months. Sunlight exposure was adequate for one child with rickets, minimal for three, and undocumented for two. Vitamin D supplementation was not recorded.

Two rickets cases presented with tetany possible from other causes, thereby delaying diagnosis. Among three children with PEM, two had allergic dermatitis, which led to diet restrictions and delayed diagnosis.
Conclusions: Only the index cases were associated with milk substitutes. However, altered diets used to treat allergic dermatitis could also pose a problem. Breast-fed children with inadequate vitamin D from sunlight or diet might require vitamin D supplements. African-American children might be at higher risk for rickets because darkly-pigmented skin filters the sun. Because outpatients were not detected by our approach, the magnitude of this problem could be underestimated.

11:25 ***Reinhard Kaiser, A. Henderson, R. Daley, M. Naughton, M. Khan, A. Rahman, C. Rubin***
Blood Lead Levels Among Children Attending Primary School — Dhaka, Bangladesh, February 2000

Background: Dhaka, Bangladesh, has one of the highest air lead levels in the world. Automobile exhaust from leaded gasoline is a major source of lead in air, dust, and soil and contributes to elevated blood lead levels (BLLs) in children. The government of Bangladesh recently announced a plan to eliminate leaded gasoline. In February 2000, we helped the Ministry of Health conduct the first lead survey among Bangladeshi children.
Methods: We assessed BLLs of children attending five primary schools in Dhaka, Bangladesh. Schools were chosen to represent different exposure and socioeconomic levels. We analyzed BLLs using a portable LeadCare instrument. We collected data on other potential risk factors (e.g., folk medicines and cosmetics) and environmental samples from each school and from homes of children with elevated BLLs.
Results: A total of 771 students aged 4–11 years participated in the survey. The mean BLL was 16.1 µg/dL (range 4.2 µg/dL to 53.3 µg/dL). Most students (87.4%) had BLLs above the CDC level of concern for children (10 µg/dL). BLLs of children were inversely associated with parents' education score (p=0.0001). Qualitative lead tests on other potential sources of lead poisoning did not indicate any common risk factors other than leaded gasoline.
Conclusions: We conducted the first BLLs survey among children attending primary school in Dhaka. The BLLs measured were similar to those in other countries before the removal of leaded gasoline. BLLs were inversely associated with the parents' education, which might represent the family's socioeconomic level. Recommendations included conducting a follow-up survey after lead has been phased out of gasoline, educating the public about improved hygiene, and encouraging a diet rich in iron and calcium foods.

11:35 ***Farzad Mostashari, M. Bunning, P. Kitsutani, D. Singer, D. Nash, M. Cooper, N. Katz, K. Liljebjelke, B. Biggerstaff, A. Fine, M. Layton, S. Mullen, A. Johnson, D. Martin, E. Hayes, G. Campbell***
Epidemic West Nile Encephalitis — New York City, 1999: Results of a Household-Based Seroprevalence Survey

Background: In August and September 1999, West Nile Virus (WNV) was recognized in the Western Hemisphere for the first time when it caused an epidemic of encephalitis and meningitis in the New York City metropolitan area. Intensive hospital-based surveillance identified 59 cases, including seven deaths in the region and nine cases involving patients residing within the outbreak's epicenter, an approximately 9-km^2 area of the borough of Queens. To better estimate the public health impact of the epidemic and its spectrum of illness, a household-based seroprevalence survey was conducted in this area.

Methods: Cluster sampling was used to select a representative sample of households. All persons aged > 6 years were eligible for interviews and phlebotomy. Serum samples were tested for IgM and IgG antibody to WNV.

Results: A total of 677 persons from 459 households participated. Nineteen persons were seropositive (weighted seroprevalence=2.6%; 95% Confidence Interval=1.2%–4.1%); 15 had detectable levels of IgM antibody. Persons who were seropositive were more likely than seronegative persons to report a recent febrile illness (30% versus 11%, $p<0.05$). Among seropositive persons reporting febrile illness, predominant symptoms were myalgia (100%), headache (89%), fatigue (87%), and arthralgia (76%); outpatient visits were common (56%). In the study area, an estimated 219 febrile illnesses (resulting in 123 outpatient visits) and 993 asymptomatic infections occurred.

Conclusions: In areas where WNV occurs, summertime clusters of febrile illness with myalgia, headache, fatigue, and arthralgia can accompany a return of WNV activity. During the 1999 WNV encephalitis outbreak, a substantial number of mild febrile illnesses attributable to WNV infection occurred. These findings reemphasize the vulnerability of naive populations to newly introduced and emerging infectious diseases.

11:45 ***Kristy O. Murray, N. Komar, R. McLean, L. Glaser, M. Eidson, F. Sorhage, R. Nelson, F. Mostashari, A. Khan, L. Rotz, D. Gubler***

Multistate, Multijurisdictional Avian Mortality Surveillance as a Detection Method for Geographical Spread and Reemergence of West Nile Virus, 1999–2000

Background: During the recent outbreak of West Nile Virus (WNV) in the Northeastern United States, high numbers of bird deaths, particularly crows, preceded the onset of clinical illness in humans. Because birds are the vertebrate host species for WNV, bird migration has the potential to result in widespread geographic distribution of this virus, as implicated historically in Europe and Asia.

Methods: In November 1999, CDC asked state epidemiologists and state public health veterinarians to participate in avian mortality surveillance for WNV. Some states had already initiated surveillance, and others began to coordinate surveillance in collaboration with various local agencies. Avian mortality was reported to CDC, and carcasses were submitted to the National Wildlife Health Center, to CDC, or other identified state laboratories for species identification, necropsy, tissue harvesting, virus isolation and testing by the reverse-transcriptase polymerase chain reaction test.

Results: From August 1999 through March 2000, 1,282 birds from 13 states were submitted (New Hampshire to Florida and Washington, DC) for necropsy and WNV testing; 1,135 (89%) have been tested. Four states have recorded specimens positive for WNV: New York, New Jersey, Connecticut, and Maryland. The most recent positive viral isolate came from New York State on February 6, 2000. American crows had the highest percentage positive for WNV (30%), followed by other members of the Family Corvidae (jays and other crows, 21%), then other bird species (7%). Twenty different submitted bird species have demonstrated morbidity and mortality resulting from WNV infection.

Conclusions: Avian mortality may serve as a useful sentinel for detecting reemergence and geographical spread of WNV, and aid in initiating a rapid response for mosquito control measures, active surveillance for human cases, and public education for disease prevention measures.